

Missouri's Emergency Medical System Expands to Treat Trauma, Stroke and STEMI Better

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Missouri cardiovascular specialists will have an important role in a new emergency medical system being introduced statewide in 2010. The Time Critical Diagnosis (TCD) system uses the trauma system model for emergency treatment of stroke and ST-elevation myocardial infarction (STEMI).

More than 250 medical professionals, health care leaders and emergency medical care providers from across the state, including many ACC members, have been meeting regularly since September 2008 to formulate regulations and guidelines for the TCD system. The regulations are in draft form and will go through professional and legal reviews before they are filed with the Secretary of State's Office in 2010.

Timely Treatment for STEMI Patients

Heart disease, including STEMI, is the leading cause of death in Missouri. Delayed treatment increases a patient's risk for death and disability. The national standard for hospitals is to have a door-to-balloon time of 90 minute or less, including transport time.

According to a study published in the *New England Journal of Medicine*, patients suffering heart attacks who receive care within 90

minutes fare better than those who do not. However, based on a survey published in *NEJM* (Oct. 18, 2007), only about 35 percent of hospitals nationwide had adopted time-saving procedures to achieve this standard of care. This is why

Missouri created the TCD team. The

team is charged with developing a statewide system to improve emergency response and treatment for STEMI and stroke, another diagnosis whose outcomes are



The 360°/365 Emergency Medical Care System diagram developed by the Missouri Time Critical Diagnosis Task Force. The circle of care diagram demonstrates a complete, integrated circle of care from incident recognition to rehabilitation and improvement.

highly dependent on timeliness of treatment. It is hoped that implementation of this system will lead to a greater proportion of regional systems and hospitals improving timeliness of transport and treatment for STEMI patients.

Missouri hospitals already have a trauma designation that differentiates which hospitals can treat patients with more severe injuries. The TCD system will provide a similar structure for STEMI and stroke patients. The focus is on timely assessment and transport to a designated facility that can provide definitive care.

A Voluntary System

While the TCD system will be adopted statewide, participation by hospitals is completely voluntary. The regulations will outline standards for centers providing four distinct levels of care for stroke and STEMI patients. Hospitals must meet these standards — including staffing, equipment, specialized services and hours of availability — to become designated as stroke and STEMI centers.

Once these regulations are adopted, hospitals may apply to the Missouri Department of Health and Senior Services (DHSS) through a process that is similar to the one currently in place for trauma center designation. It is expected that the regulations will be in place by Fall 2010.

Time Critical Diagnosis Goal:

To improve health outcomes for Missourians who suffer trauma, stroke or ST-elevation myocardial infarction (STEMI) by establishing a Time Critical Diagnosis (TCD) system.

How It Started

In 2003, the Missouri Foundation for Health (MFH) identified the need for EMS/Trauma reform in the state. MFH organized statewide meetings that included emergency department physicians, trauma nurses, state health officials and other health care professionals. Soon, legislators and other public policy leaders joined the planning process. DHSS began its collaboration with the MFH in 2005 to create the TCD System.

The late Bill Jermyn, M.D., who was chair of the State Advisory Council on Emergency Medical Services, was instrumental in forging this collaboration. He later became the State EMS Medical Director. The strategic plan, drafted in 2006 under his leadership, is still being implemented today.

In 2008, a new law was enacted in Missouri to put the TCD system into effect. Many partner agencies continue to be involved in the project. Cardiovascular specialists in facilities throughout the state have been active in helping to craft the regulations and guidelines that will one day save lives across Missouri.

For more information about the Time Critical Diagnosis system, please visit www.dhss.mo.gov/TCD System/Implementation.html.

Muzaffar is EMS Medical Director for the Missouri DHSS. Kichura is the Task Force's STEMI technical advisor. Other ACC members on the TCD team include Belinda Huff, R.N., Steve Marso, M.D., F.A.C.C.; Lisa Riggs, R.N., M.S.N.; and Michael Lim, M.D., F.A.C.C.

Public Input Meetings to be Held Statewide in Fall 2009

Health professionals are invited to attend one of six public meetings being held throughout the state in late September and early October 2009. These meetings will provide an overview regarding the TCD system and review the key standards being proposed for stroke and STEMI centers.

Those attending are encouraged to provide feedback on the draft regulations and to share their thoughts.

For information on meeting locations, dates and times, please visit www.dhss.mo.gov/TCD System/Implementation.html. The draft regulations will be available for review online after September 15, 2009.

STEMI Systems, Laws and ACC

Missouri is the only state that has enacted a STEMI law. It was the product of many years of work on the part of the state department of health, the hospitals and physicians. Now begins the complex rulemaking process to implement the law.

At present, no states have legislation that mandates transfer of all STEMI patients to a PCI center. Some states, such as Iowa, do have legislation referencing trauma patients. Iowa's legislation mandates that patients within 30 minutes of a level I trauma center must be taken directly to the trauma center. Much debate exists about implementing this type of legislation for STEMI patients.

The ACC favors cooperative agreements creating STEMI systems among stakeholders over legislative mandates because legislation can be cumbersome to change as treatment options and quality issues are updated. However, in some states, regulatory adjustments may be necessary to enable cooperative agreements to move forward.

North Carolina, Minnesota, Maine and parts of Los Angeles County, Calif., are some of the jurisdictions that have implemented STEMI systems as a result of cooperative agreements among stakeholders. In the seven-county area around Birmingham, Ala., half of the hospitals are PCI-capable and are being credentialed as STEMI centers by the STEMI Plan Implementation Committee of the Birmingham Regional Emergency Medical Services System. The STEMI plan is modeled on Alabama's Trauma and Stroke systems.

First, D2B; Now, ACTION Registry-GWTG

A process that first began with the implementation of ACC's D2B: An Alliance for Quality has morphed into much more. The complex process of system development in the modern setting requires the cooperative effort of a multifaceted collection of stakeholders. Process measurement, intervention and outcome evaluation are pivotal requirements to improving the effectiveness of a system.

The ACTION Registry-GWTG program, a partnership between the ACC and the American Heart Association, has embarked on a national measurement program focused on myocardial infarction patients in the acute care setting.

The program provides participants with rapid comparative

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feedback on their facility's performance per ACC/AHA STEMI and UA/NSTEMI clinical practice guidelines. ACC and AHA, under the Mission Lifeline banner, also are developing specific quality improvement reports and tools to support STEMI systems of care. The ACC encourages all U.S. hospitals to enroll in the ACTION Registry-GWTG program. For more information, contact the NCDR Service Center at (800) 257-4737 or ncdr@acc.org.